

CONTRA COSTA COUNTY GENERAL PLAN

COMMUNITY FACILITIES ELEMENT

FIRE PROTECTION PLAN

Contra Costa County Planning Department
County Administration Building
Martinez, California

January 1984

FIRE PROTECTION PLAN
Component of the
COMMUNITY FACILITIES ELEMENT
of the
CONTRA COSTA COUNTY GENERAL PLAN

Adopted by the
Contra Costa County Board of Supervisors
January 24, 1984

Approved by the
Contra Costa County Planning Commission
December 13, 1983

Approved by the
San Ramon Valley Area Planning Commission
December 21, 1983

Approved by the
Orinda Area Planning Commission
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STATE OF CALIFORNIA

1981

1. General Fund
2. State Lottery
3. State Insurance Fund

1982

1. General Fund
2. State Lottery
3. State Insurance Fund
4. State Housing Fund

1983

1. General Fund
2. State Lottery
3. State Insurance Fund
4. State Housing Fund
5. State Education Fund

1984

1. General Fund
2. State Lottery
3. State Insurance Fund
4. State Housing Fund
5. State Education Fund
6. State Health Fund

1985

1. General Fund
2. State Lottery
3. State Insurance Fund
4. State Housing Fund
5. State Education Fund
6. State Health Fund
7. State Transportation Fund

1986

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FIRE PROTECTION PLAN
COMMUNITY FACILITIES ELEMENT
CONTRA COSTA COUNTY GENERAL PLAN
INTRODUCTION

A. Purpose, Authority, and Scope

Fire! Hundreds of thousands of times a year, that shout reverberates down hallways or the inner recesses of the mind as Americans come face to face with one of the most dreaded causes of death and disfigurement. Ironically, for every American who will confront flames or choking smoke this year, there are hundreds who give the threat of fire not a moment's thought, who will continue to take only the slightest precautions to guard against fire.

Fire is a major national problem. During the next hour there is a statistical likelihood that more than 300 destructive fires will rage somewhere in this nation. When they are extinguished, more than \$300,000 worth of property will have been ruined. At least one person will have died. Thirty-four will be injured, some of them crippled or disfigured for life.

These words from America Burning: The Report of the National Commission on Fire Prevention and Control (1980) presents a different perspective on fire than that held by most Americans. Most citizens would consider fire a problem, but few in the past have thought it an intergovernmental problem requiring the coordination of many jurisdictions on a subregional level. On the contrary, the conventional wisdom holds that fire protection is the most local of governmental functions. For the most part the conventional wisdom was, and still is, true. Although state governments long have been concerned with prevention and control of wildfires through the office of the state forester, and the federal government works to assure safety for its employees and property, local jurisdictions bear the responsibility for general fire protection services.

1. Legislation, Ordinances and Directives

The quality of life within the County is directly related to the adequacy of the provision of various public and private services and facilities. Fire protection and emergency medical services greatly enhance community well-being and the location, development, and expansion of these public services and facilities will guide the County's future. Each new or expanded service and/or facility must be examined for its relationship to other major services and facilities. The extent and level of some services are dependent on the existence of others. For instance, only a minimum level of fire protection services can be provided in communities lacking a public water system. Thus, the location and extent of a facility or service can affect other facilities or services, ultimately affecting the County's development pattern. Only through coordinated planning can facility location, construction, and financing be economically accomplished.

Local governments have a responsibility to provide the highest and most efficient level of service within budgetary constraints precipitated by tax reform legislation, inflation, and recessionary economic cycles.

It is because of this responsibility in a time of increasing service demands and fiscal limitations that the planning and coordination of fire-service capital facility provision and financing have become imperative. Insufficient funding and lack of coordinated long-range planning can result in an inability to provide desired levels of fire protection and can result in suboptimal resource allocation manifested by inefficient station placement. In response to this need the Contra Costa County Board of Supervisors adopted an order on September 28, 1982 funding the preparation of a Community Facilities Element of the County General Plan - Fire Protection Component.

The authority for preparing a Community Facilities Element is provided by Sec. 65303 of the Planning and Zoning Law (California Government Code) which specifies several "permissive", i.e. optional, elements of the General Plan. Public services, facilities, and buildings are included as topics within the scope of General Plan elements, as well as other subjects which in the judgment of the

planning agency relate to the physical development of the County. Implementation of this plan will provide for cost-efficient station placement and maximization of the service area utility of fire stations.

New legislation, which has become effective January 1st, 1983, fortifies and expands a local agency's ability to plan the financing of community facilities. This is known as the Mello-Roos Community Facilities Act of 1982 and was enacted by Senate Bill No. 2001 and the identical companion Assembly Bill No. 3564. This new statute provides a method by which local agencies may establish a district and levy special taxes within that district to fund new public improvements and additional police and fire protection services. Other recent legislation aimed at financing fire protection facilities underscores the need to adequately provide for this essential service.

Due to the imperative nature of coordinating interjurisdictional financing of community facilities, additional legislation was passed in late 1982 which specifically authorized the preparation of a community facilities plan. The legislation, known as the "Local - State Financial Coordination Act" provides for local agencies to enter into agreements with other local agencies and/or the State of California for the allocation of ad valorem taxes for the purpose of implementing the financial component of the plan.

The need to raise funds to build and maintain the public infrastructure is being addressed at both the state and regional level. However, the process of planning the location and coordinated financing of facilities is a local and subregional problem-solving process which affects both the business and residential communities, as well as government, and requires the support and involvement of each sector.

2. Purpose of the Plan

The intent of the development of the Fire Protection Plan Component of the Community Facilities Element of the County General Plan is to provide a public policy document and administrative document that indicates fire protection

goals and service standards, proposes facility locations, provides basis for cost estimates of new capital facilities, evaluates existing and potential revenue sources, and specifies an implementation program. The Plan would provide criteria for facility requirements imposed on private sector development projects and would be a basis for subsequent development of specific capital improvement budgets.

This Plan is not designed to be a substitute for the detailed engineering, architectural, and financial studies needed to answer specific questions or problems related to individual facilities.

This Fire Protection Plan is intended to be the Board of Supervisor's policy for both Fire Protection Facilities Development in the unincorporated areas of Contra Costa County and for coordination in the incorporated areas. However, the Plan can be used in the administration of land development and public budgeting programs to a greater extent than traditional County general plan components. This is due to the fact that the governmental jurisdiction addressed in this plan transcends city boundaries and, to a lesser extent, County boundaries. Therefore, administration of funding disbursements to fire districts and administration of land development affects other local government jurisdictions to the extent that several fire service districts serve both unincorporated and incorporated areas and are inter-linked by automatic aid agreements.

3. Scope of the Plan

a. Planning Area

The area for which this plan has been prepared and adopted is comprised of five fire protection planning subareas: the Central County, the Eastern, South-eastern, the Western County Area, and the San Ramon Valley planning area. These planning subareas were defined for the purpose of separating the County into fire planning areas of manageable size. Each area was defined based upon the predominant land use characteristics of each region, the nature of expected future growth, and natural geographic boundaries. In defining these five areas it was recognized that each has a variety of land uses and geographic settings,

some of which differ from the overall characteristics of the Fire Planning Area (FPA) of which it is a part. The FPA's do not have any policy or district organization implications.

However, these FPA's lend themselves to a projection of the geographic distribution of future residential and commercial development which forms the basis for assessing future facility needs. These FPA's are described as follows:

Central FPA - Generally described by the Moraga, Orinda, and Consolidated Fire District Boundaries. This is the most diverse planning subarea consisting of industrial, commercial and office development with a broad range of residential densities and dwelling unit types both on the valley floor and in the Moraga, Orinda and Mt. Diablo foothills. The Central Metropolitan Fire Planning Area is also distinguished from other county areas by the special fire fighting requirements posed by the intense commercial, residential, and heavy industrial development and the BART system and stations.

Eastern FPA - Generally described by the Riverview, Brentwood, Oakley and Bethel Island Fire District boundaries. This area is expected to experience large amounts of residential and associated commercial development over the plan period. Large residential areas planned for development in this area are in the medium to high density range. The area is separated from other developing areas by open space and foothills to the west and agricultural land to the south. The Delta defines the northern and eastern limits.

Southeastern FPA - Generally described by the Byron and Eastern Fire Protection Districts. This area is planned to be primarily in agricultural use or open space. Discovery Bay is included in this area and represents a residential and commercial development which is somewhat isolated from other development of this type and intensity. Most development in this FPA is expected to be in the Discovery Bay area during the planning period.

San Ramon Valley FPA - Generally described by San Ramon Valley and Tassajara Fire Protection District boundaries and the Contra Costa portion of Dublin-San Ramon Community Service District boundaries. This area is characterized by

predominantly very-low to medium-density residential development, hillside residential construction, and low-to-mid-rise office and commercial development. Considerable residential, commercial, and office development opportunities are expected to be realized in this area over the planning period.

Western FPA - Generally described by the West County, Kensington, Pinole, Rodeo, and Crockett-Carquinez Fire Protection District boundaries. Development in this area is separated from the remainder of the county by natural physical barriers and open space. While development opportunities exist in El Sobrante, Rodeo, Crockett, and Hercules, the level of construction activity is expected to be lower and of a smaller scale than other areas of the County. This area of the County is one of the most diverse but the roadway system and physical relationship to the rest of the County lends the area to treatment as one planning subarea for the purpose of this plan.

b. Plan Period

The Plan looks forward through the next twenty years to anticipate changing needs and conditions, to identify and set priorities for long-term and short-term goals and policies related to various amounts, types and rates of development, and to allow for effective coordination of public and private actions and programs. The time framework of the Plan permits consideration of planning issues which might otherwise be overlooked in the day to day review of individual projects. It should be recognized that many of the policies and recommendations of the Plan have an immediate effect and, further, that many programs endorsed by the Plan require time spans considerably longer than the twenty-year Plan period. More specificity in plan features is incorporated into the first five years of the plan implementation period with provisions for subsequent periodic updates to keep the Plan responsive to changing land-use demands and development patterns.

4. Relationship to the County General Plan

As a comprehensive amendment to the County of Contra Costa General Plan, this Plan has been developed in order to ensure that County policy remains responsive to

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changing social, economic, and environmental conditions and public safety needs, that it accurately represents the most current intent and concerns of the County regarding the objectives and processes of physical development, and to ensure that the County General Plan incorporates major Fire Protection facility needs.

This Fire Protection Plan component is intended to be one of a series of Capital Facility Element components which, in the aggregate, will comprise a complete Community Facilities Element of the Contra Costa County General Plan.

The Plan serves to:

- Represent the concerns and interests of the County regarding development and conservation needed to achieve social, economic and environmental, and public safety goals;
- Present official County policy to be used in the review and comment on plan policies, programs and projects within or bearing on the Planning Area;
- Present official County policy to be used in the regulation of land use and development within the unincorporated communities and areas of the Planning Area; and
- Present a coordinated plan for fire protection facility needs to be used in implementing various funding programs.

5. Relationship to Other Parts of County General Plan

This document is a part of the County of Contra Costa County General Plan. It is supplemented by background information, analysis, and policy statements found in the Elements and documents of the County Plan and area plan which, together with document, comprise the comprehensive General Plan for the County.

Residential, commercial, industrial, and public land use locations and characteristics are designated by the Land Use Element, the central component of the General Plan for relating development to fire facility needs and locations.

Planned development areas are located according to conditions evaluated in the Open Space and Conservation, Seismic Safety, Safety, Noise, and other elements. The Circulation Element together with other elements presents a major control factor in community facility location decisions. Together these elements provide the basis for formulating The Community Facilities Element - Fire Protection Component, its goals, policies, and implementation programs.

B. Organization of the Plan

This plan is composed of five sections detailing background information, plan development, fire protection facility status, facility needs, recommendations and plan implementation.

Section I, Introduction, explains the purpose and intent of plan development. The background to plan formation, basic needs assessment, and planning process is described.

Section II, Existing Fire Protection Services, presents an overview of the existing fire protection facilities and agencies, levels of service, and financing status.

Section III, Fire Protection Prospects, projects and distributes the expected residential and commercial growth over the plan period, presents opportunities for fire risk reduction, and identifies areas of future needs.

Section IV, Fire Protection Alternatives, details staffing, service organization, facility, and financing alternatives intended for consideration during implementation of the plan.

Section V, Fire Protection Facilities Plan, presents the goals, standards, and policies related to recommended service levels, fire district organization, and

facility and equipment needs. Facility and equipment needs are projected for the short and long-term based upon the objectives presented in the beginning of this section.

This section results in policies concerning fire protection facilities, a location plan for these facilities as well as service standards and a service provision organization plan.

Section VI, Implementation Program, provides a structural format for implementing development standards, setting priorities for station implementation and site acquisition, estimating costs, evaluating and implementing finance programs, and continued review and update of the plan. Alternative and supplemental revenue sources are examined and phasing and timing of capital improvements are presented.

C. Development of the Plan

1. Background - Fire protection facilities and equipment are currently funded cooperatively by individual fire protection districts by direct tax revenues and by discretionary disbursement of Contra Costa County Augmentation Fund revenues. Individual large-scale residential or commercial/office developments participate from time-to-time in facility or equipment financing. However, a need exists to establish an equitable method of supplementary financing for capital facilities in order to enable fire protection districts to provide services concomitant with the demand for these services, and to ensure that the costs of funding new facilities are shared in a proportional manner among those directly benefited. Identifying specific facility needs provides a basis for evaluating specific finance programs and choosing those most useful for the differing land use and growth scenarios expected in the various county areas.

Long-range fire station facility planning benefits the inter-district coordination of facilities as well as the intra-district organization of facility sites to best utilize station service areas in the most efficient and long-range cost effective manner. County-wide facility planning places capital facility planning in context

with geographically specific growth areas, expected mixtures of land-use types, and intensity of development in order to ensure orderly provision of adequate fire protection services and facility sites.

The establishment of new fire stations and the selection of their sites has been conducted on a district-by-district basis as needs arise. In some instances, station site selection may occur simultaneously with large development requests or after several developments have been approved and built in a given service area. The results of this can be difficulty in locating ideally situated future stations sites as land areas become committed to development, or lengthened development times as large project proposals are reviewed and negotiations conducted to accommodate new fire station locations. A need exists to plan future station locations at an early stage to ensure optimal locations and help streamline the land development process while addressing infrastructure needs.

2. The Planning Process - Development and use of the Fire Protection Component of the Capital Facilities Element is a three-stage process. First, background information on county growth patterns and fire facilities inventories was assembled. This information was used in development of service standards and identification of facility needs. Facility needs in Specific Fire Planning Areas were then matched with the types and magnitudes of development expected in the various FPA's in order to develop recommendations on financing and implementation of the plan.

The Second Phase consisted of public hearings and refinement of the committee recommended plan. The final phase of the planning process is plan implementation—the application and use of the plan in the development review process. It is expected that major changes to general plan land-use elements will necessitate periodic review and possible update of this component of the Community Facilities Element in order to keep this facility plan responsive to the changing needs of Contra Costa County.

3. Role of the Advisory Committee - The Technical Advisory Committee (TAC) was instrumental in development of the Goals, Objectives, and Standards used in

identifying station location, station relocation, and associated facility and equipment needs. The TAC was active in plan development from the early stages of the planning process to the public hearing stage and provided valuable guidance in formulation of all technical aspects of this plan.

II. EXISTING FIRE PROTECTION SERVICES

A. Fire Protection Services

Responsibility and authority for fire protection service in Contra Costa County is spread among sixteen fire protection districts and three city fire departments. Of the sixteen fire protection districts three are independent districts governed by a board that is elected by the voters residing in the district and thirteen are governed ex officio by the Board of Supervisors of Contra Costa County. One community service district encompassing a portion of Alameda and Contra Costa Counties provides fire protection services along with park and sewer service. In total there are twenty separate governmental jurisdictions providing fire protection and emergency medical service, not including state and regional park district authorities. District boundaries are shown on Map #1. District organizational type are listed in Appendix A.

B. Levels of Service

Levels of service, measured in the time it takes to respond to a medical or fire emergency call, vary both between districts and within district boundaries. Existing patterns of development, topography, street system, types of responding equipment, fire station placement, emergency response communications (dispatch), and the location of the origin of the emergency being responded to all determine overall response times.

The desirable level of service can be measured by response time for the first responding engine company and backup companies, fire-flow provided, type of fire fighting equipment, and manpower provided at the emergency site. Desirable levels of service can also be influenced by such factors as what is at risk (property valuation and number of people), insurance standards, built-in fire protection systems, and various opinions as to what constitutes a desirable response time. Currently there is no one response time benchmark accepted by all fire protection jurisdictions as

optimal. In fact there may be differing optimal response times among jurisdictions depending on land use, development patterns and other factors. There have been several plans and studies done by both the county and individual fire districts since 1970. Each has used different service standards ranging from 5-6 minute response time standards to 3/4 mile response distances for specified land uses (approximately 3 minutes running time). Whether measured by running time, response time, running distance, or some other measure, the intent was always to provide a specified level of service in the best way possible. Nevertheless, the disparity of opinion on service levels alone underscores the complexity of the fire protection facility location issues.

C. Existing Facilities

The existing fire station locations are shown on Maps #2 through #6. Some satellite, ad hoc, or temporary stations are not shown on this map as they are not permanent and are subject to movement. There are a total of 47 permanent stations in the county with several temporary, satellite, or relocatable stations existing or expected to be operational by 1984. Equipment among these fire stations varies depending on the type of construction and land use in each station's service area. Rural stations are more likely to have tanker equipment due to lack of a public water supply, while urban stations are more likely to have specialized equipment such as aerial ladder trucks or special equipment for hazardous materials incidents.

D. Existing Financial Support

Currently fire districts obtain the majority of their revenue from property taxes. The second largest source of revenue comes from the Special District Augmentation Fund. The status and disbursement of these monies is explained in the finance alternatives section. Miscellaneous fees and charges collected in some districts also contribute to funding operational and capital replacement expenses. While these sources of revenue are generally sufficient to maintain the existing fire protection service structure in the short-run, long-term solutions are needed to the funding problems posed by the need for updating aging facilities and equipment, adding fire stations in response to continued development, and reorganizing existing station locations to better utilize service capabilities.

A long-term solution is also needed to problems posed by increasing operational costs at a time when revenues cannot be expected to keep pace with these costs. While there is no one solution which can satisfy all needs, opportunities exist to organize fire station coverage so the desired level of service is maximized using a minimum number of stations. This is critical since the operational costs for a typical fire station over a two year period can equal the cost of land purchase and station construction and equipping. Consequently, some fire district administrators are exploring the long term benefits of relocation of existing facilities in order to decrease the total operational expenses associated with the alternative of adding stations to an existing facility network with inherent inefficiencies due to their location.

E. Problems and Issues

The current problems and issues facing fire protection jurisdictions are many. While this plan does not attempt to provide solutions for them all, it does provide for a coordinated plan for fire protection facility location based on an analysis of the following relevant issues:

1. Service levels.
2. Enforcement of standards to reduce risk of fire loss in fire hazard areas.
3. Facility location alternatives to minimize long-run operating costs.
4. Facilities needed in response to new development.
5. Inter-jurisdictional coordination of facilities.
6. Financing opportunities.

III. FIRE PROTECTION PROSPECTS

A. Population Growth and Land Use Development

The following analysis places the issues identified in the preceding section in context with projections of expected growth in the County through the year 2004. The first section presents commercial and residential growth projections; the second identifies areas where fire protection features could be incorporated into development needed to accommodate projected growth; and the third section identifies basic categories of fire protection service provision needs resulting from the projected continued growth of Contra Costa County.

1. Population Growth and Geographic Distribution

- a. Short-term Growth: Planned development over the next five years is expected to be in areas contiguous to currently urbanized or urbanizing areas. The distribution of development is expected to be predominantly within existing urban service areas boundaries. Over the next five years it is expected that County population and residential and commercial construction will continue to increase in areas in transition between rural and suburban land use, including areas which continue to be served at a rural level of fire service. Short-term growth trends are largely dependent on economic trends, business community expectations, and concomitant commercial expansion in the County. Attendant residential construction and population growth generally follows the cyclical nature of business activity and will be dependent to a large extent on prevailing economic and market conditions in the next few years.
- b. Long-term Growth: It is projected that the Contra Costa County population will increase from the current 671,700 to over 853,500 within the plan period with an attendant increase in residential dwellings from 263,800 to about 349,000. Floor area of office and commercial development will

increase approximately 30 million square feet. Redevelopment will account for significant increases as Central County Metropolitan areas pursue densification of commercial areas with mid-rise office structures. Redevelopment in the Central County area alone over the next ten years is expected to increase office space by over four million square feet.

2. Residential Growth and Distribution

Each fire planning area of the County has been evaluated for expected residential construction. Projections of residential growth were based on adopted city and county general plans and redevelopment agency plans. These adopted plans each generally cover a 20 year period. In constructing the growth projections it was assumed that current general plans would accommodate expected growth for the next 20 years at which time full buildout of planned land use under these plans would be attained. Only marginal development was assigned to open space areas. Some areas are likely to experience construction at differing rates depending on construction of new employment centers; changes in the job market, income levels, and cost of transportation; and in response to varying market demands. Additionally, major changes to general plans will occur from time to time and will necessitate a review of planned community facilities.

Based on an evaluation of existing residences and anticipated construction under current general plans the following additional development over the next 20 years is expected in the respective fire planning areas:

Central County FPA - 12,000 dwellings

Eastern FPA - 36,000 dwellings

Southeastern FPA - 3,300 dwellings

San Ramon Valley FPA - 10,000 dwellings

Western FPA - 9,500 dwellings

The housing types included in the above estimates include standard single family residential and attached multi-family residential developments. Housing is expected to be predominantly one and two-story construction within a 35 foot height limit.

3. Commercial Growth and Distribution

Projections of commercial development are necessarily more variable due to the difficulty in identifying the propensity of individual mid-to-high rise commercial/office development. Large institutional complexes not shown on County or City General Plans or redevelopment agency plans may be accommodated through the Plan Amendment process only after locational decisions and project proposals are made by project proponents. Since one or two large, institutional developments can moderately affect commercial growth projections any estimate of future development should be reviewed periodically to reflect new large-scale development proposals.

The following projects represent office, retail, commercial, and light industrial building square footage to be constructed over the next twenty years in each of the five fire planning areas.

Central County FPA - 17,600,000 sq. ft. Commercial/Office

Eastern FPA - 4,300,000 sq. ft. Commercial/Office

Southeastern FPA - 580,000 sq. ft. Commercial/Office

San Ramon Valley FPA - 7,000,000 sq. ft. Commercial/Office

Western FPA - 2,400,000 sq. ft. Commercial/Office

These projections were compiled using adopted City and County General and Specific Plans, reviews of large-scale institutional developments, market studies, and surveys of City and County Planning staffs.

B. Fire Protection Service Provision Needs

In reviewing the current status of fire protection service provision and the expected development in Contra Costa County the following needs have emerged as central features which this plan is intended to address:

1. The need to develop a basic standard service level which would provide for a maximum response time for first-due fire companies to reach fire locations prior to the "flash over point" and to reach medical emergency victims early enough to prevent further damage.
2. The need to apply this standard to areas where development exists or is planned in order to develop a plan for a coordinated network of fire stations.
3. The need for implementation of development standards which would aid fire protection provision and reduce the risk of spreading fire in hazardous fire areas.
4. The need for a definitive format for implementation of new and relocated fire stations.
5. The need for additional innovative/and equitable means of financing fire station construction, equipment, and fire protection service provision.
6. The need for specific goals and policies aimed at providing the desired level of fire protection service, providing service in an efficient and timely manner and reducing levels of risk and the severity of structural fires.

C. Development Standards

During the mid to late 1970's and the early 1980's Californians suffered large losses as tens of millions of dollars worth of homes and personal property were lost to large-scale fires at the urban-rural interface. These losses are largely in hillside areas where an accumulation of natural vegetation, providing large amounts of fuel,

together with steep topography aid the spread of fire. Large losses have also been experienced in areas of high density development partly due to construction materials which allow the quick spreading of fire.

With the fast pace of residential development in California over the last several years, and trends in the home building industry homes are increasingly built at the urban fringe or at high densities as part of the infilling process. This means increased construction in hillside areas, where the spread of fire is hastened by slopes and fuel loading on the ground; increased building where the urban areas meet wildland areas subject to large scale and fast moving fire; and increased urban densities in response to rising land costs.

Based on this history of loss it has become clear that several factors can predispose an area to greater life and property loss than would occur if some basic precautions and preparations were incorporated into development. Losses are aggravated by increased response times, attributable to poor access; fire suppression constraints, due to inadequate water supply and fire flow; and construction materials which aid the spread of fire. Several choices can be made which, if implemented during the development process, could allow fire fighting capabilities to be more effectively utilized while reducing the probability or severity of property and life loss.

The following measures are intended to retard the spread of fire in the critical urban interface areas, provide additional protection to life and property commensurate with risk, and allow for more effective utilization of the fire suppression and emergency medical response infrastructure:

1. Access - Access to all development shall be assured through public roadways, private roads, and private driveways to the building site which do not exceed 20% grade. In major subdivision residential developments at least two different ingress-egress routes shall be required where reasonable and practical unless conclusively shown to be not reasonable and practical. Access to large private open space areas shall be provided from roadways, and maintained and coordinated with fire trails on adjacent properties and overall project circulation.

2. Water Supply - In areas with public water supply sufficient water pressure and/or water storage consistent with applicable fire protection standards and guides shall be provided. In areas where public water supply is not available sufficient private water supplies with sufficient fire flow and storage shall be available to meet applicable fire protection requirements. Water supplies shall be provided prior to the framing stage of construction.
3. Roofing Materials - Unless applicable building code regulations require more restrictive construction standards the following roofing shall be required: Residential building with aggregate sideyards between roof eaves of less than 20 feet shall incorporate roofing rated class "C" or better as defined in the Uniform Building Code, 1982 Edition. Residential buildings in areas designated by the fire chiefs as "Hazardous Fire Areas" shall have fire retardant roofing as defined in the Uniform Building Code, 1982 Edition.
4. Landscape Buffers - Installation and maintenance of irrigated landscaping within 30 feet of all residential structures shall be utilized in subdivisions and integrated or planned unit development in urban interface areas. Consideration shall be given to the use of fire resistant plants.

IV. FIRE PROTECTION ALTERNATIVES

This section details staffing, service organization, facility, and financing alternatives of the plan intended for consideration during implementation of the plan.

A. Staffing Alternatives

1. Full-Time Paid

The great majority of County fire protection is provided by full-time paid professional fire service. This type of service is characterized by 24 hour staffing of stations with fire fighting companies. All heavily urbanized areas in the County, served by fire districts, are provided with this type of service. Full-time, 24-hour a day, seven days-a-week staffing allows for a broader spectrum of accessory community services to be provided on a regular basis. These include fire prevention services such as plan review, fire investigation, permits, and public education program. Full-time service districts generally provide more expedient overall fire fighting and emergency medical responses attributable to 24-hour station staffing. This service alternative provides the highest level of service.

2. Paid/Volunteer

Some fire protection districts utilize volunteer companies with some full-time paid staff. This district staffing alternative provides staffing during normal business hours and has the capability of providing accessory fire prevention services on a regular basis. Fire suppression and emergency medical response is limited by the availability of personnel and the additional response time component attributable to sufficient volunteers responding to the dispatch station location. This service alternative provides a bridge between the volunteer and full-time paid professional service alternative often appropriate in areas which are in transition from rural to more urbanized land use.

3. Volunteer

Volunteer fire protection companies operate in both rural and urban areas of the County. Fire suppression and emergency medical response is limited by the availability of personnel and the additional response time component attributable to sufficient volunteers responding to the dispatch station location. These companies generally provide fire suppression and emergency medical responses on a reliable basis. Due to the low staffing costs and the large service areas covered by many stations with volunteer companies, this alternative represents a cost-efficient means of providing service particularly in rural and transitional suburbanizing areas.

B. Alternative Organizations of Service

Several organizational alternatives, both singularly and in combination, are available for the provision of fire protection services. The current organization of fire protection services involves 13 county fire districts, three independent districts, three city departments, and one Inter-County district with varying cooperative service agreements.

1. Mutual Aid

Fire protection districts executed mutual aid agreements with adjoining districts in order to provide more expeditious full responses and higher service levels in certain areas and for various fire fighting situations. Mutual aid agreements provide for interdistrict fire fighting responses for coordination and pooling of fire suppression activities on an as needed basis. Under this form of agreement the initially responding district would, if necessary, request aid from other fire protection jurisdictions on an as needed basis to supplement the responding district's capabilities. The need for extra-district aid is determined on a case-by-case basis and response is by request only.

2. Automatic Aid

For certain areas of the County some fire protection districts have executed automatic aid agreements with adjoining districts. Automatic aid agreements provide for simultaneous dispatch of fire suppression personnel and equipment from more than one fire protection jurisdiction for a given incident. Unlike mutual aid agreements, which require specific requests for inter-district fire suppression responses, automatic aid agreements allow for spontaneous inter-district responses. This type of aid agreement can provide for effective emergency medical and fire suppression responses in areas requiring specialized equipment, high fire flows, or large full responses and can be of benefit in reducing overall response times for some geographic areas.

3. Contractual Coverage

Certain areas can be more effectively served by nearby city or county fire department station locations than by stations in the district containing the area. Service provided by contractual arrangement is one means of obtaining coverage for an area which, by itself, would otherwise be served less cost-efficiently compared with the alternative of establishing an additional fire station in the subject district.

4. Centralized Administration

Administration of more than one district's operation from a central office is one alternative to reduce duplication of management services and gain some benefits stemming from centralized administration, better manpower usage, and associated efficiencies. This alternative is currently used on a limited basis either by sharing of selected administrative personnel or by sharing of a range of administrative functions.

5. Centralized Fire Prevention Services and Facilities

All full-time paid professional type districts generally provide plan review, fire investigation, public education, permit, and code inspection and enforcement services on a regular basis. Volunteer districts may provide some of these services or arrange for full-time districts to provide these type services on their behalf. The advantage to this centralization of service, as oppose to the fragmentation of service provision, includes those advantages of centralized-administration and also provides benefits of consistency of application and interpretation of regulations, facilitation of development and permit review processes, and regular business hours for obtaining these services which may not always be available in volunteer fire protection districts.

6. District Consolidation

In recent years a considerable amount of consolidation of fire districts has occurred in central and southern county. Consolidation has improved the efficiency of service provision by allowing the realization of economics of scale and the benefits of centralized administration.

Consolidation of fire protection districts is an alternative to service provision fragmented among several smaller districts. Consolidation per se may not always provide a more economical organizational structure as diseconomics of scale and other inefficiencies can occur. However, consolidation as an alternative organisational structure aimed at providing more efficient and effective services, should be considered as opportunities arise.

7. District Boundary Adjustment

During the land development process access from various fire stations to certain areas can be increased or decreased by construction or alteration of street systems or the augmentation or diminution of their physical barriers. As this process occurs over time it may be necessary to review service boundaries for

possible modification in order to maintain or increase the level of fire protection and emergency medical service provided to some geographic areas. Additionally, urbanization at the perimeter of existing development or in certain areas served by rural-oriented fire protection districts may necessitate the consideration of district boundary adjustments, in conjunction with station construction or other service or facility provision, as one alternative means of providing appropriate levels of service.

C. Facility Alternatives:

The provision of coordinated fire protection services in Contra Costa County requires several types of capital facilities. These facilities can be divided into categories of Fire Protection Response Stations and Support Facilities. The fire stations are those buildings and sites used predominantly for storage of fire suppression apparatus and equipment and housing of personnel from which fire companies are dispatched. The support facilities are those buildings and sites where administrative, dispatch, mechanical repair, training, and other support services are located. In some instances fire stations and support facilities are combined. A description of facility alternatives follows:

1. Fire Station Facility Alternatives

Manned Permanent Station -

This station type is typically a two-bay to three-bay structure with sleeping and cooking facilities, meeting room, and office. Facilities range from 3000-4000 sq. ft. for the basic station, sometimes more if other services or duties are conducted on site.

Unmanned Permanent Station -

A permanent structure typically with two-bay to three-bay but with minimal or no sleeping accommodations; sometimes lacking office areas, conference rooms, and/or meal preparation areas. This facility alternative is smaller than the

manned permanent station and is utilized with the reserve-response or volunteer-response type of service.

Temporary/Relocatable Facilities -

These types of facilities can have the size and characteristics of either the manned or unmanned permanent stations but, instead of being permanent, they are designed for short-term use and are intended for removal or relocation at such time as a permanent facility and location are available to serve the subject area. Temporary or relocatable stations can be used in either volunteer or full-time paid districts. This facility alternative can provide a means of meeting immediate service needs until implementation of station operation at a permanent location is feasible and desirable.

Temporary facilities may also consist of the stationing of equipment at the residence of a volunteer fire fighter with or without equipment housing and with or without remuneration for use of the site..

2. Support Facility Alternatives

District Administrative Facilities -

District administrative offices are, in most cases, associated with a fire station. Administrative services provided at these facilities include district management, code enforcement, investigation, permits, and plan review. The size of the facility is a function of the type and intensity of development in the district's service area, the size and type of organization within the district, and the spectrum of services provided.

Centralized Administrative Facilities -

Opportunities may arise to consolidate administrative and or fire prevention services among two or more districts at one centralized administrative facility. The size and design of an inter-district facility would be a function of the

number of districts participating in the centralized facility and the scope of services provided. Since some economies of scale may result from utilization of this facility alternative it should be examined at the implementation stage in the course of evaluating proposals for relocation or addition of single district administrative offices.

Operational Facilities -

Some centralization of dispatch and communications facilities has occurred in the County and has resulted in overall cost savings. Other opportunities may arise to centralize mechanical repair, training or other operational facilities. Provisions are made in the implementation program for evaluating this facility alternative in conjunction with requests to relocate or expand operational facilities.

D. Financing Summary

During the 1960s and 1970s, local governments and the private sector were concerned about building new facilities to serve the rapidly growing population, and little attention was paid to the potential long-term costs of maintaining area-wide facility systems. Because Contra Costa County is a growing region, we still have to worry about how to pay for public facilities critical to our future growth; but we must also devote significant attention to organizing and maintaining the infrastructure in the most cost efficient and equitable manner. Contra Costa County shares this problem with almost every local jurisdiction in the Bay Area.

There is no need here to review extensively the effects recent tax revenue and limitation measures have had on local governments. Although not every local government has serious problems, many have been severely weakened by revenue losses and declines in Federal and State assistance and by inflation.

The prospects for improvement in the fiscal condition of many special districts are not good. Additional revenue raising capability should be part of a concerted, Countywide effort. Until this is done, capital facility financing problems in many jurisdictions will be particularly acute.

Business shares with the public sector a growing awareness of the difficulty of sustaining an economy at a time when the ability to provide for local infrastructure is declining. To address this problem Contra Costa County has undertaken the formulation of this component of the Community Facilities Element in cooperation with fire districts operating in the County. The preceding sections of this element have dealt with projected facility needs for areas of the County which vary widely in projected growth rate, land uses, and geographic setting. The following section will describe the existing funding situation and a variety of options available for funding new fire facilities.

1. Current Fiscal Resources

The level of funding from the following sources varies from district to district and year to year. A general description of each is provided:

a. Property Tax Revenue

Property tax revenues collected within each tax rate area are posted to fund accounts for agencies, districts, and service areas deriving revenue from each geographic rate area. Each fire district has an account or accounts to which these funds are credited. Distribution of taxes collected under the present one percent limit varies by tax rate area and is proportionate to the share of funds collected in the respective areas prior to passage of proposition 13 unless otherwise negotiated. Of the gross revenues collected on behalf of each fire district an average of 42% is retained by the district to be spent at their discretion. The remaining average 58% is credited to the special district augmentation fund. Property tax revenues retained by each district constitute the predominant source of operating revenues.

b. Augmentation Fund Disbursements

The County Fire Chiefs Association annually reviews requests from each fire district for augmentation fund monies. Suggested priorities are recommended to the County Administrator. The County Administrator's

Office reviews the requests and reports to the County budget and finance committees. Committee recommendations are made to the Board of Supervisors for final decisions on fund disbursement.

c. State Reimbursements

Some revenues are obtained by state reimbursement programs for purchase of required OSHA approved safety clothing and equipment. The status of reimbursements and the prospects of this source of funding continuing is indeterminate.

d. Miscellaneous District Fees

Most fire protection districts have a schedule of fees under which revenues are generated to partially or totally off-set the cost of certain types of plan review, code inspection and enforcement, or permits. State law provides for imposing these charges provided they are limited to the cost of the service or regulation provided.

2. The Financing Alternatives

The previous section has summarized the need to raise funds to build and maintain the infrastructure. In examining questions of that need, and the capability to meet it, an examination of available funding possibilities was undertaken.

The financing options briefly identified below are analyzed in the section which follows:

REVENUE-RAISING METHODS

Development Fees - A conventional approach to raising local revenues based on fees collected at the building permit stage of development.

Benefit Assessment - Involves paying for certain public facilities using geographical districts and determining property benefits and proportionate assessments.

Community Facilities District - Involves establishment of local districts to enact special taxes to pay for certain public facilities and services.

Independent Authorities - Joint delivery by two or more local public agencies of facilities or services, such as fire and police protection.

Special Taxes - A revenue source identified in Proposition 13 that local governments may use for specific purposes after approval by a two-thirds vote.

Sale or Lease of Assets - A method whereby unneeded land or equipment may be sold or leased to provide, respectively, working capital or annual revenue.

DEBT METHODS

Revenue Bonds - Now that general obligation bonds by local governments are limited to those authorized prior to passage of Proposition 13 in 1978, revenue bonds are the most readily available and conventional way to finance public facilities.

Lease-Purchase Financing - A traditional approach to acquiring real property or equipment for public purposes.

Certificates of Participation Lease Financing - Involves the sale of certificates (representing interest in leases to public entities) to private investors to raise funds for new facilities. This method is often used in combination with sale and leaseback arrangements.

Redevelopment Agency - Current redeveloped law enables a code/enhancement agency to use redevelopment revenues from tax-increment serviced bond issues to pay for infrastructure items including fire stations on their relocation. The improvements must benefit the redevelopment area but expenditures can, in certain instances, be made outside of the redevelopment area.

PUBLIC-PRIVATE APPROACHES

Charitable Contributions - Seeking contributions from citizens and the private sector for tangible public facilities and their operation and maintenance.

Public Sector as Entrepreneur - Involves local government operating as if the local government were a private firm; examples are municipal insurance programs and development of surplus property.

Sale and Leaseback - Involves the sale of newly constructed or existing facilities to private investors and leasing them back for public uses.

Development Agreements - Pursuant to Government Code Chapter 4, Article 2.5 any city or county may enter into a development agreement with any person having a legal or equitable interest in real property for the development of property. Such agreements may stipulate intensity of development as well as provisions for reservation or dedication of land for public purposes.

E. Financing - Analysis

The preceding section summarized options for financing community facility capital improvements. In this section the options are presented in more detail followed by an analysis of funding adequacy, equity, ease of administration, and areas of greatest applicability.

1. Development Fees

Since the passage of property tax limitation measures, the fastest growing area of infrastructure financing has been fees, user charges and developer contributors. A 1981 analysis on local finances prepared for the Assembly Office of Research found a 39 percent increase in fees and user charges between 1977 and 1979, a period from immediately before to immediately after passage of Proposition 13 of 1978.¹

In four appellate court cases interpreting Section 4 of Article XIII A of the Constitution of the State of California (Proposition 13, 1978) the courts have evaluated the charges at issue in light of their interpretation of the purposes of this Article. Appellate courts have held that both fees and special assessments are not "special taxes" since both these charges must be reasonably related to the benefit, privilege, or service conferred by government upon the person or property on which the charge is levied.²

The Gann Initiative (Proposition 4, 1980) limits the amount of revenue which state and local governments may spend by imposing a ceiling on "appropriations subject to limitation." Such appropriations may only increase concomitantly with increases in population and the Consumer Price Index. By its terms, the initiative exempts fee revenues from this limitation. A recent Court of Appeal decision holds that revenues from special assessments are also not subject to the spending limitation. General law cities and counties may impose fees limited to the cost of the service or regulation provided. Voter approval is not required and fee revenue is not subject to the appropriation limitation. The limits of what services may be provided for on a fee basis, are predominantly untested at this time.

Additionally, local governments may levy fees which offset the cost of the service provided without voter approval and without subjecting the expenditure of funds so raised to the spending limitations imposed by Article XIII B.

The use of development fees, usually collected at the building permit stage, is one of the easier funding methods to administer. Usually an area of need (or benefit) is defined, new facility needs identified, and projections made of development potential in the area. Fees can then be calculated based on the expected number of residential dwelling units, plus the number of residential dwelling-unit equivalents for non-residential construction. Residential dwelling unit equivalents can be calculated for non-residential construction based on comparative average residential fire-flow requirements, or another proxy measure of fire suppression demand, and then moderated in consideration of built-in fire suppression features. Fee levels can then be set by applying facility

cost estimates (as of the construction completion date) to total dwelling unit equivalents.

While the fee system is among the easiest to administer it has the basic funding adequacy problem of not providing an immediate lump sum for initial facility construction or sufficient funds for facility construction at the desired date of facility implementation. Facility cost recovery only occurs near full build out of an area in which the fee system is applied. Since fire facilities must be activated to serve developing areas prior to full build out, supplemental funds from other sources must be borrowed or otherwise raised to bridge the gap between fee revenue at partial build out and facility cost. Remaining facility costs are then recovered from future fees collected.

The use of the fee financing method is most equitable in newly developing areas where the great majority of new development will pay its fair share of facility costs. When applied to partially developed areas average fee costs to new development may rise as existing development escapes the fee imposition but benefits from the results, resulting in inequities. The fee financing alternative is least equitable and least feasible in predominantly developed areas.

2. Assessments

Fire Suppression Assessments: By passing AB 934 (Kapiloff, 1981), and AB 2753 (Kapiloff, 1982) the Legislature allowed fire districts to levy fire suppression assessments (Government Code Sections 500785-50078.18). State law permits a fire district to levy these assessments without an election if protests are less than 5% of the expected revenue. If the protests are more than 5% but less than 50%, the district can either halt proceedings or continue, subject to majority voter approval. If protests are 50% or more, proceedings must stop.

This alternative is controversial because some interest groups contend that assessments for fire services are really only special taxes in disguise. In spite of this argument, however, the Legislature, and the Senate Local Government Committee, passed both bills. As of mid 1983 at least two fire districts have used the assessment method.

To promote uniformity in carrying out local assessments, AB2753 allows the State Fire Marshal to prepare a model ordinance that fire districts can adopt. The ordinance would match the assessments to the use of a property and the fire risk it poses. This approach permits the assessments to reflect the benefits to each property. The Fire Marshal's office is currently preparing a draft model ordinance.

Special Assessments: Specific statutory authorization has been required for the imposition of special assessments. "Special" or "benefit" assessments are charges levied upon land on the basis of the benefit conferred in order to finance the construction of public improvements.

The 1983 public-private task force from Association of Bay Area Government and the Bay Area Council issued a report which identified benefit assessment districts as one way to fund capital improvements which may be locally acceptable. Such districts are one alternative to requiring project developers to pay for construction of necessary infrastructure through development fees and other contributions. Excerpts from this report follow:

"Benefit assessment as an option for infrastructure financing highlights a fundamental debate in public finance between the so-called "benefit" principle and the "ability to pay" principle. The benefit approach argues that payment should be in line with the benefit received from public services. The ability to pay approach argues that payment should be in line with one's income or wealth so that equal amounts are paid by taxpayers with equal ability to pay.

"Benefit assessment districts have been widely used in California, dating to the early part of this century. It has traditionally been used to pay for certain public improvements such as streets, lighting and drainage facilities. The general principle underlying the use of these districts has been clearly stated (Solvang Municipal Improvement District v. Board of Supervisors of the County of Santa Barbara, 1980): "(The) general public should not be required to pay for special benefits for the few, and the few specially

benefitted should not be subsidized by the general public." In that case, the California Court of Appeal specially warned against the levy of an assessment to pay for the general expenses of a local agency, but sustained earlier opinions that benefit assessment is a valid approach to funding improvements of direct benefit to the affected properties."³

"Benefit" or "special" assessments have been described as "a compulsory charge placed by the state upon real property within a predetermined district, made under express legislative authority for defraying in whole, or in part, the expense of a permanent public improvement therein, enhancing the present value of such real estate, and laid by some reasonable rule of uniformity based upon, in the ratio of, and limited by, such enhanced value."⁴

The essential limitations upon the power of a municipality to levy an assessment are that the improvement must be public in nature and must confer a "special benefit" upon the property assessed.⁵ It is the existence of a special benefit which justifies the levying of a charge on the property owner rather than on the general public.⁶ The existence of a special benefit, likewise, distinguishes an assessment from a tax which is a charge levied for the benefit of the general public.⁷

The test of whether a benefit is conferred is usually whether the value of the property is increased in reference to present or potential uses.⁸ The formula on which the assessment is levied must be based on the amount of benefits received.⁹

Benefit assessments take the form of some proportional measure such as square footage of buildings to be protected or fire flow requirements. Assessments are imposed against the benefiting property and become a lien. If the assessment is not paid in full within a specified time, bonds are issued by the local agency for unpaid assessments, and each property owner is required to make payment until the bonds are retired.

Following passage of Proposition 13, the legislature authorized the use of a form of benefit assessment district to pay for police and fire protection services. Two-thirds approval by local voters is required to finance such services under this law. Such a vote has been obtained in areas such as Indian Wells, Palm Desert, Rancho Mirage, San Marino, and Stanton; elections have failed in several other local jurisdictions, including Los Angeles and Oakland.

The benefit assessment approach is one of the more detailed forms of finance to administer. However, since considerable experience with this form of financing exists due to a history of its use throughout the County, administration of the district should not be an obstacle to its implementation. Since approval of the district by voters within its proposed boundaries is required this could be one limitation to ease of application. Consequently, benefit assessment districts could more easily be used in the newly developing areas where land holding ownership is concentrated and where the benefits of fire station provisions can clearly be shown to benefit those within the proposed district boundaries.

Assessment of financing provides for acquiring sufficient funds at a predetermined time to implement a fire protection facility. The level of funding, proportion of assessment, and time when sufficient funds are available are all specified in the proceedings and organization of the district. This provides for a more precise and specific implementation plan than with some other alternatives such as the development fee. A more equitable spread of costs among those benefiting from the facilities is attained since existing as well as new developments would pay their share of implementation and construction costs.

3. Community Facilities Districts

Entitled the "Mello-Roos Community Facilities Act of 1982", this new statute provides a method by which local agencies may establish a district and levy special taxes within that district to fund new public improvements and additional police and fire protection services necessitated by new development or rehabilitation. A local agency is defined for the purposes of this Act as "any city or county, whether general law or chartered, special district, school district, or any

other municipal corporation or district." This definition appears to include community redevelopment agencies. The types of facilities that may be financed include any "governmental facilities which the legislative body creating the community facilities district is authorized by law to construct, own, or operate."¹⁰

The proceedings for the establishment of the community facilities district may be initiated by either a written request signed by two member of the legislative body or by a petition signed by at least ten percent of the registered voters residing within the territory proposed to be included within the district. A resolution is required to describe the proposed boundaries of the district, state the type(s) of public facilities and/or services to be provided, state that a special tax will be annually levied within the specified area, indicate the anticipated tax rate and method of apportionment in sufficient detail to allow the taxpayers to estimate their annual taxes payable under the levy, make a finding that the proposed facility is "necessary to meet increased demands put upon the local agency as a result of the new development or rehabilitation", and set the date for a public hearing.

If at the public hearing there are protests from 50 percent or more of the registered voters residing within the proposed district, or owners of one-half or more of the land within the proposed district, the legislative body shall abandon the proposed establishment of the district, or the specific facility or service objected to, if that be the case. If whatever protest exists is not sufficient to cause the abandonment, the legislative body may adopt a resolution creating the district.

The legislative body is then required to submit the levy of any special taxes to a vote of the qualified electors of the proposed district within 90 days. If fewer than 12 registered voters reside within the proposed district, the vote shall be by the landowners of the proposed district, each landowner having one vote for each acre or portion of any acre that he or she owns in the district. If two-thirds of the voters approve the levying of the tax, the legislative body shall determine that the community facilities district is created with full legal effect. The

legislative body may then levy the special taxes at that rate and apportion them in the manner specified by the resolution. Such taxes may be used to pay debt service on bonds and other forms of financing.

This finance approach is among the most equitable, requiring participation by all property owners within the designated district. It is also among the most difficult to administer due to limitations on the duration of the special tax/district appropriation limit. In some instances voter approval may be required every four years to review the appropriation limit. Additionally, separate voter approval would be required for the special tax and the issuance of bonds, although the bond may be consolidated with the election to approve the special tax. Since this legislation is intended to provide for facilities and services over a larger area than the benefit assessment district, voter support must be available for such community wide improvements as fire stations which may be viewed by some voters as having no direct effect on their properties.

The financing advantages of this approach include a means of generating cash flow for operating expenses as well as lump sum amounts through bond sales. Current provisions for the four year time limit on appropriations may inhibit the marketability of long term bond issues. Other constraints to the use of this finance alternative include a lack of flexibility to add new services within the appropriation limit without voter approval.

4. Independent Authorities

California law permits local agencies to enter into agreements under the Joint Exercise of Powers Act to exercise any power common to the parties to the agreement. This law would permit local agencies to join together to provide for local infrastructure and public services, thereby reducing overall costs. Reorganization and partial consolidation of some or all services and functions among city fire departments and/or fire districts can result in overall cost savings, the need for fewer fire stations, and increased levels of service.

Another application of joint provision of infrastructure and services is the joint use of land, facilities and/or services by two or more service providers such as police and fire authorities.

Since this revenue raising method actually relies on cost savings rather than the generation of additional funds an equity analysis is not provided in this section. The ease of administration and fiscal effects of joint power agreements must be reviewed on a case by case basis before a statement of fact can be made regarding the individual application of this finance alternative.

5. Special Taxes

General law cities and counties may impose or increase "special taxes" with a two-thirds vote of the electorate but without additional legislative approval of the specific tax. The term "special tax" has not yet been judicially defined. The only charge determined thus far to constitute a "special tax" is an increase in a business license tax. Counties are currently prohibited from imposing business license taxes. Government Code, Section 50075, et seq., provides a blanket authorization for local government to impose special taxes. In addition, Article XIII A, Section 4 may itself provide sufficient authority for the levying of special taxes without legislative approval. However, counties and general law cities continue to be required to obtain legislative authorization to impose taxes which are not "special taxes."

In 1979, the Legislature granted fire districts two separate authorities to impose special taxes subject to 2/3 voter approval. SB 785 (Foran) was a general authorization for special taxes available to all counties, cities, and special districts (Government Code Sections 50075-50077). AB 618 (Chappie) created a separate taxing authority just for fire agencies but still required 2/3 voter approval (Government Code 53978). Fire districts have passed special taxes but in only about 20% of the cases where they have been attempted.

While approval of a special tax, like a benefit assessment or a community facilities district tax, requires a two-thirds approval by affected voters, there

may be a greater ease of administering disbursements of proceeds from special taxes versus other revenue-generating alternatives previously discussed. The special tax approach is as equitable as the community facilities district alternative. However, drawbacks include the fact that the revenue produced by a special tax will be included in the "appropriations subject to limitation" mandated by Article XIII B. Consequently, even if a local government is able to levy a special tax it may be unable to spend this revenue unless it curtails other spending or, pursuant to Section 4 of Article XIII B, it obtains a vote of the electorate changing the appropriations limit for a period of up to four years.¹¹

6. Sale or Lease of Assets

Some fire districts have obsolete or unneeded equipment which could be liquidated and the proceeds placed in a capital replacement sinking fund. Surplus, vacant, and unused land could be sold, if not needed for a future fire facility, or ground leased on short-or long-term bases. Revenues, either lump sum from sales or continuing from leases, could be used to finance future facility needs. Revenue generated by leased property may have the potential for debt-service application for certain types of bonds issues.

While this source of funding cannot be expected, by itself, to fully finance future facility needs, it can play a contributory role in combination with other finance alternatives.

7. Revenue Bonds

While Proposition 13 limited the use of general obligation bonds, revenue bonds are still available as a funding source under the Revenue Bond Act of 1941. Revenue bonds are those in which the principal and interest are payable from the revenues of a revenue-producing enterprise. Specific infrastructure improvements explicitly authorized under revenue bond authority include water treatment, sanitation, fire protection, recreation, garbage collection, sewer treatment, public parking, hospitals, light, heat and power generation. They are generally issued after majority vote of the voters to finance a public improve-

ment, used to deliver a service for which the public agency levies a fee or user charge.

A special type of revenue bond is the lease-revenue bond. These can be issued by a non-profit corporation or special authority to construct a facility to be leased to a local government. Lease payment provides the revenue to pay off the bond; when the bond is retired, the facility is turned over to the local agency. Lease payments are typically a direct obligation of the lessee's general fund. Lease revenue bonds do not have to be approved by the electorate but do require approval by ordinance of the lessee. This type of bond can be used in conjunction with various sale and leaseback arrangements.¹²

This finance alternative has several advantages. First, no new taxes are required. Second, a majority vote is required prior to bond issuance rather than a two-thirds vote. In the case of lease-revenue bonds, no vote approval of issuance is required. Feasibility is enhanced in growing areas of the county where property tax revenues are expected to increase, thus raising the ability of the individual fire district to pay the bond debt service, or the facility lease, in the case of lease-revenue bonds. This finance alternative has the potential to be combined with other revenue generating alternatives.

8. Lease-Purchase Financing

An effective way to involve the private sector in capital facilities improvements is through the use of traditional lease and lease-purchase arrangements. While there has been much discussion recently about innovative sale-leaseback transaction that take advantage of opportunities under the 1981 Economic Recovery Tax Act, lease and lease-purchase arrangement that have been traditionally available to local governments should be considered as well. While equipment purchase has been the major lease-purchase use by California local governments, this technique has also been used to acquire real property, construct buildings and other facilities. A typical approach has been the establishment of a nonprofit corporation at the request of a local agency to build a structure leased to the local agency. The corporation issues bonds secured by a long term lease

with the local agency (see lease-revenue bonds). The lease payments are set at a level sufficient to retire the debt and upon retirement, title to the facility passes to the local agency.

From the standpoint of tax treatment, there are basic distinctions between operating and lease-purchase agreements:

An operating lease is usually structured to meet the IRS guidelines of a true lease. The lessee, a fire district for example, is not buying the asset; it is simply using it for a period of time. The term of the lease is usually less than the asset's useful life, and the parties may not agree on a purchase price to transfer ownership at the end of the lease term. The lessee can only buy the asset at the ends of the lease for its fair market value or reserve the right to outbid the highest bidder by \$1. The lessor is usually responsible for maintenance, insurance and taxes. If the operating lease meets the true lease guidelines, the taxpayer/lessor may claim depreciation benefits and tax credits on new equipment and on qualified rehabilitation expenditures. Qualified expenditures occur on 30-year-old commercial or industrial buildings and historic structures if the lessor and lessee are private, for-profit businesses. If a special district or county is the lessee, the lessor may claim depreciation benefits and not the tax credit, with one exception; the investor may claim the rehabilitation investment tax credit on qualified expenditures even if the county is the lessee of the building.

A lease-purchase agreement is not a true lease and therefore not subject to favorable tax treatment by the IRS. In effect, the lessor is selling the asset to the lessee, and the sale is financed by the lease payments. If the County is the lessee, the interest portion of the lease payment may be tax-exempt to the lessor, if it meets the obligation requirements of the Internal Revenue Code while avoiding being classified as county debt. To avoid classification as debt, the lease-purchase agreement usually has a "funding out" clause that allows the local government to terminate the lease. Lessors may charge a higher interest rate because the agreement may be terminated. Such arrangements frequently include a non-substitution clause, preventing the jurisdiction from turning to another vendor to lease the same asset for a period of time.¹³

This type of financing is relatively easy to administer and is currently used by fire districts. Advantages include being able to acquire facilities or pieces of equipment without a large capital outlay, and no additional taxes or fees required for implementation. The main disadvantage is increased annual district operating costs attributable to lease agreements. Cash flow must be available to cover lease payments.

9. Certificates of Participation Lease Financing

Because of the large dollar amounts needed to finance certain public facilities through lease-purchase arrangements, numerous investors may be needed to participate. The requirements to have numerous investors has resulted in the development of what has come to be called a certificate of participation. This is simply a piece of paper, similar to a bond, serving as evidence that the investor owns an undivided percentage interest in the lease payments of the local government agency, which leases the new facility. These certificates are generally issued in \$5,000 denominations. They are not issued by the public agency, and therefore do not constitute evidence of indebtedness. Thus these certificates do not have to be put to a vote under Article XIIIB of the Constitution. However, security for the certificate holder would be the general fund of the special district or county or city government. This method has the advantage of raising a lump sum for capital facilities construction, providing a manageable payment schedule for the lessee, and providing a return on investment to the certificate holders.

10. Redevelopment Agency

Current redevelopment law enables a redevelopment agency to use redevelopment revenues from tax-increment serviced bond issues to pay for infrastructure items including fire stations on their relocation. The improvements must benefit the redevelopment area but expenditures can, in certain instances, be made outside of the redevelopment area. Consequently, redevelopment funds could be used to establish new stations; or relocate existing stations in the redevelopment area not currently at the optional location, to another location either in or out of

the redevelopment plan boundaries. It must be shown that the implementation of the fire station location plan would benefit the redevelopment area. In currently developed areas where development fees or other finance alternatives may, by themselves, not provide sufficient funding for plan implementation, the redevelopment agency may play a valuable role in financing station establishment or relocation. Financing through the redevelopment agency may be combined with a lease-purchase agreement or other funding alternatives.

11. Charitable Contributions

Public agencies can receive from individuals or corporations gifts that are tax deductible to the contributor.

Citizen groups have met with success in organizing fund raising campaigns for community centers, schools, and other civic buildings. This source of revenue has been used successfully in Contra Costa County and should not be overlooked when evaluating the individual application of finance alternatives to specific projects.

Many local agencies have embarked on campaigns to solicit charitable contributions. Among the most innovative in the Bay Area was a format used by the City of Menlo Park, which published a Community Gifts Catalog. Donations were made by gift category and could be used by the city to purchase playground equipment, street and park trees, police and fire equipment, library books and park benches.¹⁴

12. Public Sector as Entrepreneur

This alternative is intended to provide a source of ongoing revenue to be used for building a capital replacement fund, or to be borrowed against via bond issuance. It involves the local government (fire district, etc.) operating as a private firm and developing surplus property. Although a short or long term capital outlay would be involved, depending on if the property were developed respectively for sale or lease, the potential returns are greater than under the more simple to

administer alternative of sale or lease of assets. Risk is also increased proportionately to potential return. Some districts may not have the working capital to pursue this alternative, but in combination with other finance methods this could be a part of an overall solution to facility finance. This alternative may have applicability to districts with surplus land holdings and the ability to develop and/or manage the commercial property in much the same way as the County owns and operates Buchanan Field Airport.

13. Sale and Leaseback

This alternative involves the sale of newly constructed or existing facilities to private investors and leasing them back for public uses. It has been used successfully for public safety buildings and larger scale improvements in jurisdictions of varying size.

Recent changes in federal tax law through the 1981 Economic Recovery Tax Act made sale and leaseback arrangements more beneficial to private investors by accelerating cost recovery through depreciation. Since public agencies may not benefit from depreciation of property a means to transfer the potential for depreciation to private investors often through the medium of real estate syndications. Investors realize tax benefits of depreciation as well as an income stream from the lease agreement with the local agency.

There are variations on how this option can work. Buildings can be sold with or without land, for example. Building-only sales would provide for 100% depreciation by investors and have different rate of return implications compared with the building plus land sales. Differing lease arrangements are also available with varying maintenance options and varying repurchase options and varying risk levels for both the private investor and the governmental entity.

In some cases, tax-exempt financing may be able to be combined with some of the sale and leaseback arrangements. The combination of tax benefits accruing to private firms and/or individuals along with the lower cost of tax-exempt financing can result in a higher sale price or lower lease cost.

A leveraged-lease financing type of sale-leaseback structure may be appropriate for certain asset investments. The leveraged lease involves an addition of a lender to the standard two-party lessee/lessor structure. In a leveraged lease transaction private investors are generally willing to pay for the tax benefits that may be derived from ownership of the public property. The local government can potentially benefit by an amount equal to the net present value of the tax benefits transferred to the private entity (in addition to the sale price).

While administration of an on-going sale-leaseback arrangement is not an overly complex matter, the initial set-up of lease agreements, property sale, and financing (if any) may require expert advice not available within the local government staffing. The advantages to sale-leaseback formats include generation of lump sums of cash for site acquisition and development of additional needed facilities, no increase in taxes to property owners in the fire district resulting directly from program implementation, and the opportunity for additional tax credits to investors if rehabilitation of the sold facility (at least 30 years old) is included in the lease agreement. Local agencies would then have the opportunity of repurchasing, at the end of the lease period, facilities rehabilitated in part or in whole with federal dollars via tax credits to the investors.

A disadvantage to the sale-leaseback method is increased operating costs to the fire district attributable to lease payments. However, opportunities exist to invest a significant portion of the proceeds from the sale in a fund to cover lease payments and future repurchase expenses. The remaining proceeds could be used toward site acquisition or new facility development.

1. "Renewing our infrastructure", ABAG/Bay Area Council joint advisory panel, March 1983.
2. "City and County Finances in the Post Proposition 13 Era", State of California Assembly Public Affairs Office, Appendices Vol. II, 1980.
3. ABAG/BAC op. cit.
4. Spring Street Co. v. City of Los Angeles (1915) 170 C. 24, 29.
5. Irish v. Hahn (1929) 200 C. 339, 344.
6. Spring Street Co. v. City of Los Angeles, supra, 1970 C. 24.
7. See Northwestern Etc, Co. v. State Board of Equalization (1946) 73 C.A. 2d 548; County of Fresno v. Malmstrom (1979) 94 C.A. 3d 974.
8. Kalashian v. County of Fresno (1973) 35 C.A. 3d 43.
9. Honegger v. Reclamation Dist. No. 1619 (1961) 190 C.A. 2d 684.
10. Redevelopment Legislative Report, Report #21 Volume IV, October 4, 1982.
11. Derived from: "Senate Legislative Committee Report on Fire District Financing", Senate Committee on local government, November 1982.
12. California Assembly Public Affairs Office, op. cit.
13. ABAG/BAC, op. cit.
14. I.B.I.D.

V. FIRE PROTECTION PLAN

A. Goals

1. Provide fire protection and emergency medical response for all citizens and properties throughout Contra Costa County in the most effective and efficient manner.
2. Reduce the fire problem to lower risk levels as opportunities arise.
3. Provide protection in depth for high-risk land uses, structures, and occupancies.
4. Consider innovations which show potential cost-effective improvements in the delivery of services and the protection from fire hazards.
5. Reduce the severity of structural fires and minimize overall fire loss.
6. Minimize the cost of public fire protection through the location of fire protection facilities consistent with the established levels of fire protection service, the determination of a means of capital facilities financing, and the property timing of facility implementation.
7. Locate and design stations to maximize efficient use of the planned community street system and be compatible with the community.

B. Objectives

Goal #1:

Objectives

- 1.1 All areas planned for urban development should be within a maximum running time of 3 minutes and/or 1.5 miles for the first-due fire station, within the constraints of cost effective service provision.
- 1.2 All rural areas should be within a maximum running time of 6 minutes and/or 3 miles of the first-due station, within the constraints of cost effective service provision.
- 1.3 Areas which cannot be served at the applicable level in a cost effective and cost efficient manner are considered accepted risk areas. Other development requirements may be implemented to reduce the risk of property loss, injury, and loss of life in accepted risk areas.
- 1.4 In evaluating proposed station locations and their respective priorities such factors as call incidence and type, population, fire flow requirements, development density and valuation, land use, and planned circulation in the service area should be considered.

Goal #2:

Objectives

- 2.1 Address fire prevention and fire loss management in initial and ongoing planning activities.
- 2.2 Major and minor subdivisions, development plans, use permits, and other entitlement requests shall be reviewed, evaluated, and acted upon to assure that implementation of needed facilities identified in this plan occurs in a timely manner, in response to development, and consistent with service standard objectives.
- 2.3 Maximize utilization of existing and proposed fire protection facilities through review of street circulation and design.

- 2.4 Provide for reducing fire risk in response to community needs by identification of needed upgrades to stations planned for retention.

Goal #3:

Objectives

- 3.1 Adequate fire protection should be assured for projects which require specialized fire protection services; such as structures over thirty-five feet or uses involving the handling on storage of hazardous materials.

Goal #4:

Objectives

- 4.1 Encourage Capital facilities funding proposals which include reports or recommendations on district area annexations, or other service provision management programs in the interests of long range economy.
- 4.2 Prior to funding capital improvements for fire protection support services and facilities, such as training dispatch, or administrative facilities, consider the potential for cost savings through inter-district sharing of such facilities.
- 4.3 Provision of interim fire protection using temporary and relocatable stations should be considered to meet immediate, existing service needs until such time as permanent stations can be established.

Goal #5:

Objectives

- 5.1 Minimize potential life loss, injury, and loss of property caused by wildland fire in rural areas and at the urban interface.

- 5.2 Plan development standards should be incorporated into development approval to more effectively utilize fire protection services in areas of hillside development, and rural areas.

Goal #6:

Objectives

- 6.1 Design and locate fire stations to minimize the lifespan operating costs and provide the prescribed levels of service in the most cost efficient way.
- 6.2 Choose capital intensive (as opposed to labor intensive) alternatives where life cycle cost comparisons are favorable.
- 6.3 Explore and consider the least cost financing alternative for each fire facility or group of facilities prior to implementation of any finance mechanism for that facility or group of facilities.
- 6.4 Areas planned for urban development and/or surpassing the threshold criteria of 700 persons per square mile or \$14 million in property improvement valuation per square mile average, or experiencing 200 or more response incidents within a planned station's service area should be provided with urban levels of service.

Goal #7:

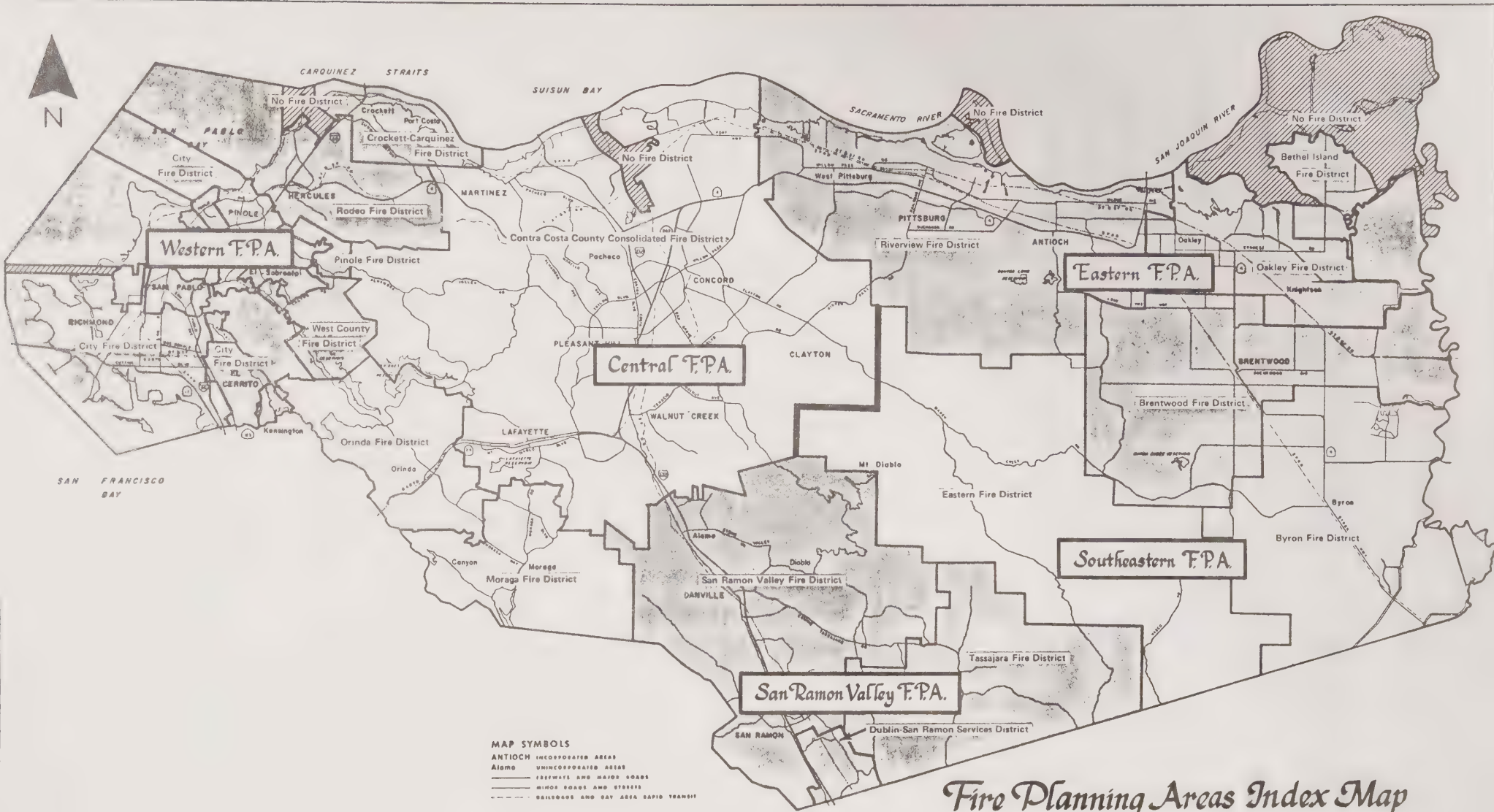
Objectives

- 7.1 Maximize access to arterial streets.
- 7.2 Give special consideration to ingress and egress safety including the need for traffic control devices.
- 7.3 The architectural design of fire stations should be compatible with the surrounding community.

7.4 Fire stations should, to the extent possible, be compatible with nearby land uses.

C. Fire Protection Facilities

Application of the service standards identified in goals and objectives was tempered with several factors as outlined in the explanation of the methodology used by the Technical Advisory Committee found in Appendix B. The resulting station location plans for facilities to be retained and the new locations for relocated stations and additional stations are shown on Maps 2 through 6. Planned station locations are described in Table A.



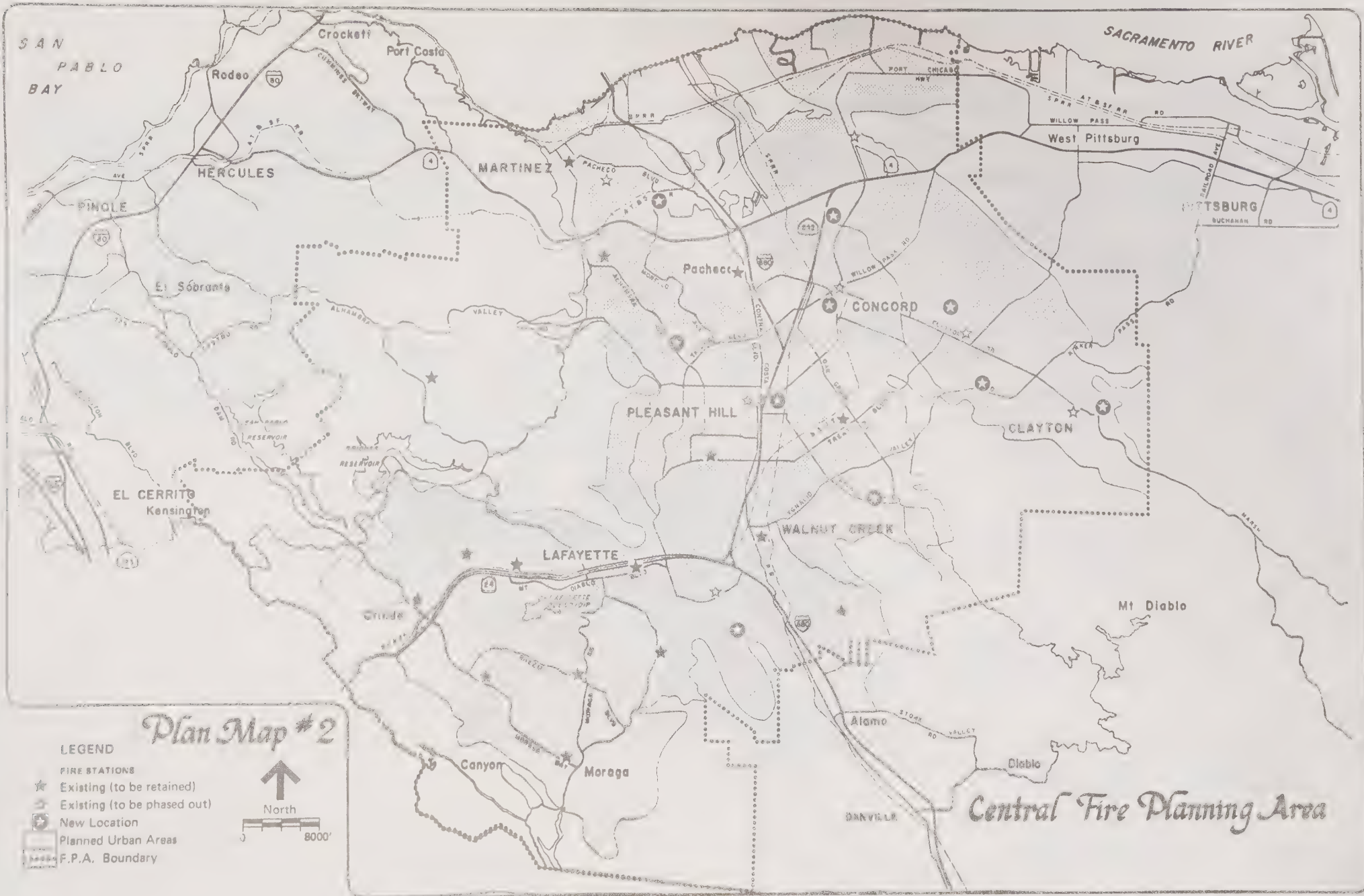
Fire Planning Areas Index Map

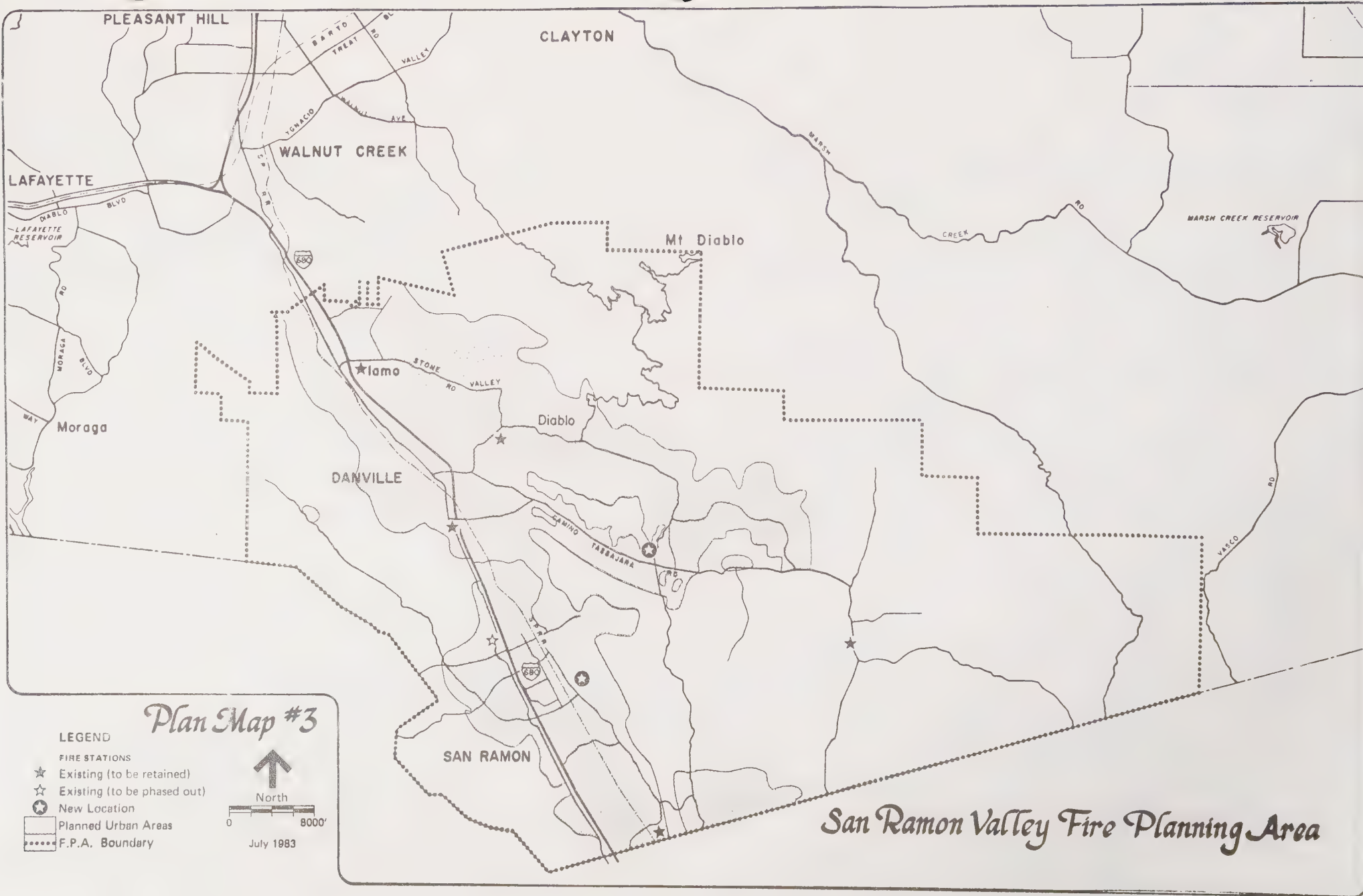
CONTRA COSTA COUNTY
CALIFORNIA

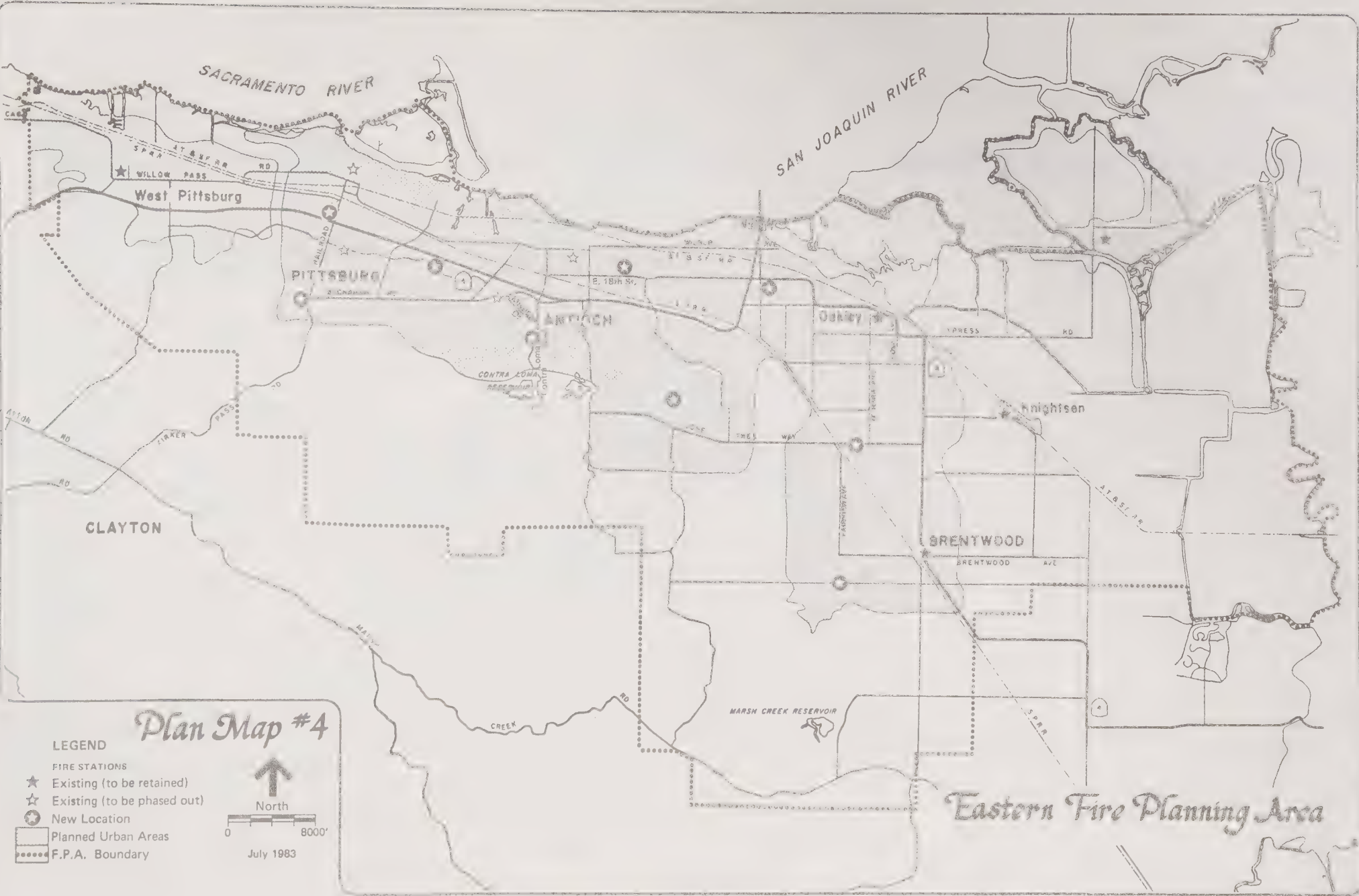
BASE MAP PREPARED BY THE
CONTRA COSTA COUNTY PLANNING DEPARTMENT
ADMINISTRATIVE BUILDING, MARTINEZ
CALIFORNIA 94553 JULY 1978

July 1980









Plan Map #4

- LEGEND**
- FIRE STATIONS
 - ★ Existing (to be retained)
 - ☆ Existing (to be phased out)
 - ⊙ New Location
 - Planned Urban Areas
 - F.P.A. Boundary



Eastern Fire Planning Area

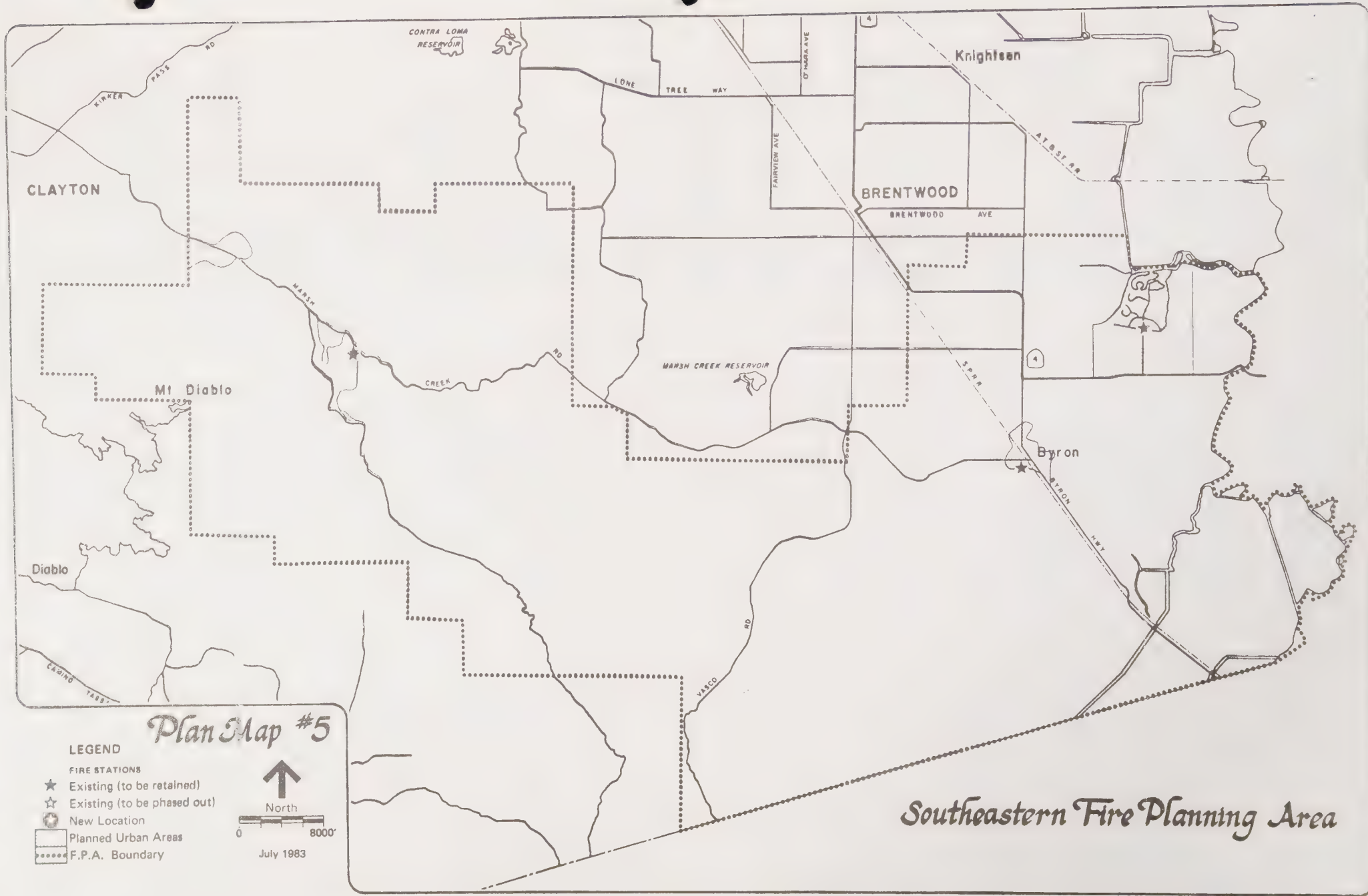


TABLE A
Station Location Plan

<u>District</u>	<u>Existing Station</u>	<u>Location Status</u>
<u>Bethel Island</u>	Main Station #1	Retain
<u>Brentwood</u>	Main Station #1	Retain
<u>Byron</u>	Downtown Byron Station	Retain
	Discovery Bay Station	Retain
<u>Contra Costa Consolidated</u>	Station #1	Retain
	" #2	Retain
	" #3	Relocate to vicinity of Tice Valley Blvd. and Rossmore Parkway
	" #4	Retain
	" #5	Relocate to vicinity of Monument Blvd. & Lisa Lane
	" #6	Relocate to vicinity of Galindo and Park Streets
	" #8	Relocate to vicinity of Denkinger Rd. & Wilson Lane
	" #9	Retain
	" #10	Retain
	" #11	Relocate to Keller Ranch
	" #12	Relocate to vicinity of Morello Ave. south of Santa Fe RR tracks
	" #13	Retain
	" #14	Retain
	" #15	Retain
	" #16	Retain
	" #17	Retain
	" #18	Relocate to vicinity of Freeway 24 and Hillsborough Dr.
	" #19	Retain

Crockett Carquinez

Crockett Station Retain

Dubin-San Ramon CSD

Alcosta Station Retain

Eastern

Marsh Creek Main Station Retain

Kensington

Arlington Station Retain

Moraga

Station #41 Retain

" #42 Retain

Oakley

Oakley Main Station Retain

Knightesen Station Retain

Orinda

Station #43 Retain

" #44 Retain

" #45 Retain

Pinole

No existing station

Riverview

Staion #1 Relocate to Cavallo Rd.
between 18th St. & Wilber Ave.

Station #2 Relocate to vicinity of
central portion of southeast Antioch

Station #3 Relocate to Contra Loma Blvd.
between Longview and Putman St.

Station #4 Relocate to vicinity of
Civic Ave. West of Railroad Ave.

Station #5 Relocate to vicinity of
Buchanan Rd. & Crestview Dr.

Station #6 Retain

Rodeo

Rodeo Station Relocate to vicinity of
Willow Ave. east of I-80.

San Ramon Valley

Station #1 Retain

" #2 Retain

" #3 Retain

" #4 Relocate to Alcosta Blvd. north of
Bollinger Canyon Rd.

<u>Tassajara</u>	Tassajara Road Station.	Retain
<u>West County</u>	San Pablo Station	Retain
	El Sobrante Station	Retain
<u>Additional Stations</u>	<u>Location</u>	
Blackhawk	Station A	Blackhawk Road
Brentwood	Station B	Vicinity of Fairview and Balfour Rd.
Clayton	Station C	Vicinity of Ygnacio Valley Blvd. near Turtle Creek Road
El Sobrante	Station D	Vicinity of Castro Ranch Rd. and San Pablo Dam Rd.
Hercules	Station E	Vicinity of Refugio Valley and Redwood Rd.
Oakley	Station F	Vicinity to Highway 4 and Oakley Rd.
Pleasant Hill	Station G	Vicinity of Alhambra Ave. and Paso Nogal
Southeast Antioch	Station H	Central portion of SE Antioch
South Oakley	Station I	Vicinity of Lone Tree Way and Fairview Ave.
Walnut Creek	Station J	Vicinity of Walnut Ave. and Cheyenne Dr.

VI. IMPLEMENTATION PROGRAM

A. Role of Established Fire Protection Programs

1. District Ordinances

Each fire district has adopted a set of regulations and fire codes for application to new construction and existing development. Each fire jurisdiction should be encouraged to amend or interpret their ordinance and fire codes to be consistent with the development standards section of this plan. The application of the Plan Development Standards at the subdivision stage should occur through the planning review and referral process with input from the involved fire protection agency.

B. Facilities Plan

1. Priority

In formulating this fire protection facilities plan the County was segmented into five geographic Fire Planning Areas (FPA's). Each FPA must be periodically reviewed by the Planning Department in conjunction with affected districts to identify station implementation priorities. Subareas of each FPA consisting of planned station service areas will be assigned priorities using existing, short-term, and long-term levels of development; exposure of population and improvement valuation to fire hazards; and response time deficiencies in order that the desired levels of service can be provided. Each service area for planned stations may be categorized into primary or secondary priority classifications as follows:

- Primary Class - Characterized by immediate need (based on adopted Goals and Objectives) with population, commercial property valuation or response incident experience surpassing the station implementation threshold criteria (Objective 6.4). Within this classification, priority

should be given to planned stations which would bring the greatest existing population and/or the area of greatest incident-time product within planned service standard response distance.

- Secondary Class - existing developed or low growth areas with no additional stations planned, areas needing only expansion of existing facilities not affecting response times, and areas with adequate coverage but requiring reorganization of station locations to improve overall response times and/or reduce operating costs. Within this classification priorities should be set in consideration of the operational needs of the entire fire protection system and cost-effective resource allocation.

2. Site Selection

Prior to implementation of a finance package for each subarea the following site information shall be developed:

- A priority listing of site acquisition for station relocations and new stations within the subject geographic area. This will be determined to a great extent by which station service areas have surpassed the station establishment thresholds and which are projected to surpass the thresholds in the near-term.
- A review and feasibility analysis of potential sites and alternate sites based on the site selection criteria in the plan objectives.
- A timetable for site acquisition reflective of station priorities, rates and patterns of development, and the availability of alternate sites.

3. Implementation Costs

Prior to implementation of a finance package for each identified priority area the following cost information shall be developed:

- Site-specific complete cost estimates of site acquisition, development, station furnishing and activation costs, and any equipment, moving and set up costs.
- A five-year capital improvement budget for the specific area in which a finance plan is proposed and an overall implementation timetable for completion of additional stations relocations, and/or station expansions and improvements.

4. Finance Implementation

Recommendations to the Board of Supervisors for implementation of a finance program shall include the following information:

- An analysis of the most feasible finance alternative and the least total cost alternative, if different from the most feasible.
- Complete facilities priority, site selection, cost and budget information including a 5-year capital improvement budget.
- Projected/estimated revenues from proposed means of finance.
- An analysis of facility alternatives for any proposed multiple use or non-fire station facilities, e. g. training facilities.
- Draft implementation ordinance.
- County Counsel opinion of legal ramifications of finance alternatives.

5. County Ordinances - Implementation of Development Standards

The County Building Code should be reviewed for possible amendment to implement the development standards of this plan. This should be done in cooperation with fire district review of fire codes to insure uniformity and consistency.

The County Subdivision Ordinance should be reviewed for possible amendment to incorporate access, water availability, and design standards to insure that future land subdivisions are consistent with this general plan element.

C. Continuing Planning

All Planning Department reviews of land division and site development requests shall include an analysis and statement of conformity with the Goals and Objectives of this plan.

The Planning Department will review the Fire Component of the Community Facilities Element of the County General Plan annually so that the Board of Supervisors may update it to reflect changes in the Land Use Element of the General Plan, new technologies, new standards, changing patterns of development, and new requirements of fire protection and emergency medical service in Contra Costa County.

It is the policy of the Board of Supervisors to seek State legislation enacting statutory authority for implementing finance programs in addition to those currently authorized in order to provide for needed facilities.

Study and consider the adoption and use of a countywide ordinance requiring installation of automatic fire suppression systems and/or smoke and heat detection systems, as appropriate, on all new commercial construction to be monitored by approved central station supervision with automatic retransmission to the respective fire district.

APPENDIX A

FIRE DISTRICT ORGANIZATION ROSTER

Fire Protection Districts

Governed by the the Board of Supervisors

Bethel Island
Brentwood
Byron
Contra Costa County Consolidated
Crockett Carquinez
Eastern
Moraga
Oakley
Orinda
Pinole
Riverview
Tassajara
West County

Independent Fire Protection Districts

Kensington
Rodeo
San Ramon Valley

Inter-County District

Dublin-San Ramon Community Services District

City Fire Departments

Richmond
Pinole
El Cerrito

APPENDIX B

METHODOLOGY

The response time standards and population/valuation threshold criteria contained in the Plan Goals and Objectives provide the basis for evaluating fire station location needs.

A response time standard of 1.5 miles first-due response distance for urban areas and 3 miles for rural areas was used. This standard provided for meeting two objectives; arriving at an urban fire within approximately 3 minutes running time (5 minutes total response time) which provides for fire fighter arrival at the scene of a medical emergency during the critical 5 minute period following an incident. Total response times were recognized to vary depending on such factors as the speed of reporting an incident or fire. The 1.5 mile response distance, and the associated running time of 3 minutes calculated at an average speed of 30 mph, provides for meeting the "flash-over" and medical emergency objectives, and is the most widely accepted and recommended standard.*

An application of the standards to the existing fire station network was made to assess three main questions. There were:

1. Where do service areas of existing stations overlap and result in "wasted" response areas or areas of "double" coverage?
2. Where could existing developed areas be better served by relocating existing stations whose service areas are not being fully utilized?
3. Where will additional fire stations be needed to serve existing and planned development?

Areas planned for urban development were identified and existing station service areas were plotted on an overlay mapping system. Existing development beyond the specific service areas was inventoried for population, land area, commercial property improvement valuation, and type of construction. Projections of population and improvement valuation were made for developing areas beyond the mapped service areas.

The inventory and projections were then used in conjunction with the baseline service standard to determine the station network which would cover the greatest population and property improvement valuation with the least number of stations, while maximizing attainment of service standard goals. Preliminary station location plans and alternatives were then referred to affected jurisdictions. After consulting with the affected districts and considering special local factors involving circulation, topography, and actual timed runs final adjustments to planned station locations were made as appropriate.

Careful consideration was given to the fire protection environment for higher risk areas. Cost-benefit analysis was used when considering the level of service provided in areas beyond the baseline standard running distance. In some instances areas were considered accepted risks since provision of an optimal level of service would not constitute an efficient allocation of fire protection resources. Emphasis was given to the entire fire protection system when evaluating higher risk areas.

The plan development methodology was based on quantitative evaluation of fire protection provision coupled with an iterative planning process which allowed for input of opinion and experience of fire-fighting professionals during plan development. Both a theoretical and empirical approach was used in evaluating levels of service attributable to alternate station locations as well as alternate total numbers of stations.

*The Nation Commission on Fire Prevention and Control, "America Burning", (1973), p. 174.

Warren Y. Kimball and the National Fire Protection Association, "How to Judge Your Fire Department", (1972), pp. 9, 28 & 29.

International City Managers Association, "Municipal Fire Administration", (1967), pp. 159 & 160.

Insurance Services Office, "Grading Schedule for Municipal Fire Protection", (1974), pp. 25 & 26.

Governmental Research Council of San Mateo County, "Analysis of Fire Services System in San Mateo County", (1979), pp 113 & 134.

GLOSSARY

This glossary defines terms used in the plan which may be unfamiliar to the user, and/or which have special meaning with the context of fire protection planning.

ACCEPTED RISK - The less than optimally protected portion of what there is to burn, defined by the objectives, and accepted by the community through approval of the objectives.

ADVISORY COMMITTEE - A body of community representatives which reviews and guides the work of the planning team.

ALTERNATIVE - (n) One of two or more things, courses, or propositions to be chosen. (adj) Offering or expressing a choice.

ANALYSIS - Examination of a complex, its elements, and their relations.

BASELINE STANDARD - The current standard with modifications to the resource levels necessary to meet the fire situation and objectives.

CAPITAL IMPROVEMENT BUDGET - A plan for the coordination of resources and capital improvement expenditures.

COST-BENEFIT - A term used to express the value of a benefit-producing system. Can be expressed as a ratio of cost (negative value) to benefit (positive value) both in equivalent terms such as dollars, person-hours, etc.

CRITERION - A definitive measure on which a judgment or decision may be based. Plural is CRITERIA.

CURRENT - Occurring in or belonging to the present time.

CURRENT SYSTEM - The fire protection system in place at present.

EMPIRICAL - Originating in or based on observation or experience.

FIRE PLANNING AREA (FPA) - The elemental building block upon which planning is based. An area in which it is desired to define and manage the fire situation.

FIRE PREVENTION - That part of fire protection activities exercised in advance of the outbreak of fire to prevent such outbreaks and to minimize loss when fire does occur.

FIRE PROTECTION - The act of shielding from loss or injury due to fire.

FIRE PROTECTION ENVIRONMENT - The conditions, circumstances, and influences, under which the fire protection system must operate. Includes population, land use, physical, structural and non-structural, financial, legislative, regulatory, and water supply environments.

FIRE PROTECTION SYSTEM - A regularly acting or interdependent group of items employed in fire protection. Includes public and private agencies, apparatus, equipment, facilities, procedures, and people.

FIRE SUPPRESSION - The total work of extinguishing a fire beginning with its discovery.

FLASHOVER - Thermal radiation feedback from the ceiling and upper walls which have been heated by the fire. This radiation feedback gradually heats the contents of the fire area. When all the combustibles in the space have become heated to their ignition temperature, simultaneous ignition occurs (NFPA Handbook, Fourteenth Edition).

GOALS - The general end toward which effort is directed. In the context of fire protection, master planning goals are fundamental, inclusive, nonspecific, qualitative, future-oriented, and time independent.

HIGHER RISK AREA - Areas beyond the applicable first-in response time and/or areas at the urban/wildland interface.

IMPLEMENTATION PHASE - The period in which the plan is carried out, updated, and modified.

INCIDENT-TIME PRODUCT - The product resulting from multiplying the average number of response incidents per year by the average running time within a given station service area.

ISO - Insurance Services Office.

ITERATIVE PLANNING PROCESS - A method of cycling back through earlier steps in the process to define the results.

LEVEL OF SERVICE - The magnitude of the supply for a public demand. In terms of fire protection the magnitude may be expressed in many ways, such as percent of people protected, percent of buildings protected, area protected, monetary value of property protected, etc.

OPTIMAL - Most desirable or satisfactory.

OPTIMUM - Greatest degree attained under implied or specified conditions.

PLANNING PHASE - The period in which the community is identified and the fire situation defined; the goals, objectives, selection characteristics and measurements defined; alternative systems defined and analyzed; a preferred system selected; and a Master Plan prepared to acquire and maintain the system.

QUALITATIVE - Having to do with the basic nature or kind of a characteristic; such as capital cost, fire loss, etc.

QUANTITATIVE - Having to do with the property by which a characteristic can be measured; such as a capital cost not to exceed ten million dollars for reduction in fire loss, etc.

RESPONSE INCIDENT - Any situation or condition requiring the response of one or more fire companies to provide urgent or emergency services.

RUNNING TIME - The total travel time from point of dispatch to place of arrival.

STATION SERVICE AREA - A geographic area of approximately seven square miles formed around a fire station. Actual service areas may be somewhat less than seven square miles due to access and topographic limitations.

SYSTEM - A regularly interacting or interdependent group of items forming a unified whole; as a group of devices or artificial objects or an organization forming a network especially for distributing something or serving a common purpose.

URBAN - All land use areas except those designated agricultural, open space, or the equivalent.

URBAN/WILDLAND INTERFACE - That area or zone where structures and other development intended for human occupancy meets, or intermingles with land in the open space land use designation or its equivalent.

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Project Planner

WITH PARTICIPATION OF
THE FIRE PROTECTION TECHNICAL ADVISORY COMMITTEE

COMMISSIONER PAT BOOM
San Ramon Valley Fire Protection District

COMMISSIONER ED CAVALLI
Riverview Fire Protection District

CHIEF ALEX CLARK
Pinole Fire Protection District

CHIEF DONALD MARKERT
Kensington Fire Protection District

CHIEF WILLIAM MAXFIELD
Contra Costa County Consolidated Fire Protection District

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